NavMed 369

UNITED STATES NAVY

MEDICAL NEWS LETTER

Editor - Captain L. B. Marshall, MC, USN

Vol. 21 Friday, 29 May 1953 Vol. 10

TABLE OF CONTENTS

Roentgen Amniography 2
The Hazards of Pregnancy in Women With Heart Disease..... 4
The Exposure Treatment of Burns 5
Ewing's Sarcoma 7
Bladder Tumor Recurrence in the Urethra..... 8
Tuberculous Lesions of the Kidney..... 9
The Management of Malignant Hypertension..... 10
Oral Hexamethonium in the Therapy of Hypertension 11
Evaluation of a New Agent in the Treatment of Parkinsonism 13
Poliomyelitis Research 15
Resilient Plastic Replicas of Pathological Specimens 16
The Speaking Method in Measuring Vertical Dimension 17
Depth of Focus and Amplitude of Accommodation..... 18
Urethane in Chronic Glaucoma 19
Infantile Cortical Hyperostosis 20
Measles Encephalomyelitis 21
Rehabilitation in Malum Coxae Senilis 22
Control of Infections Associated With Obliterative Arterial Disease 23
Plantar Warts 25
Previous Education and Age in Pre-Flight School..... 26
From the Note Book 27
Supply levels for medical and dental stores (BuMed Inst. 4442.1) 30
Orthopedic footwear (BuMed Inst. 6800.1)..... 30
Property exchange and accountability (BuMed Inst. 6700.2)..... 30
Accounting and reporting procedures (BuMed Inst. 7000.1)..... 31
Allotment accounting and reporting (BuMed Inst. 7303.1B) 31
Disinsection of naval vessels and aircraft (BuMed Inst. 6250.2A) 32

Policy

The U. S. Navy Medical News Letter is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be nor susceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

* * * * * *

Roentgen Amniography

Amniography consists of opacifying the amniotic fluid in the uterus with a suitable contrast medium in order to delineate the uterine cavity and to study certain aspects of maternal and fetal physiology.

Although a soft-tissue roentgenogram in a lateral projection will delineate the placenta in well over 90% of cases, there are certain instances where it fails, as in early pregnancies, most multiple pregnancies, transverse presentations of the fetus, and in low implantations. Amniography, on the other hand, will unerringly locate the placenta as a filling defect in the symmetrical pyriform shadow of the amniotic sac under all conditions. When uterine tumors are suspected coincidental with pregnancy, amniography will locate them accurately. The amniogram will reveal any deformity or other cause in the uterus which might be responsible for abnormal presentation of the fetus. Whenever any abnormality of the fetus is suspected, amniography is invaluable. Where multiple pregnancies exist, amniography will determine whether they are of the uniamniotic or biamniotic variety and also locate the single or double placentation.

When films are taken at a period of approximately 3 hours following the initial opacification of the amniotic fluid, certain interesting phenomena occur. First, the fetus swallows the opacified fluid, which can be easily identified in the fetal bowel providing the fetus is alive. Every investigator using amniography has found swallowing to occur. Szendi demonstrated it radiologically in a 6-week-old fetus, following injection of Thorotrast and abortion 72 hours later. This is apparently the youngest human fetus in which gastrointestinal activity has been observed. Because swallowing and propulsion of material in the bowel are a vital activity which cannot occur after death of the fetus, amniography shows in every instance whether the fetus is alive or dead and is extremely valuable when the diagnosis of fetal

death cannot be made otherwise. Except for Ehrhardt, previous workers have not mentioned this method of diagnosing fetal death, but it would seem worthy of emphasis.

Another interesting phenomenon observed in delayed films is that of absorption of the contrast material. In this series of cases, Diodrast was the medium of choice. In 3 hours following introduction of this substance into the amniotic sac, the opacity of the amniotic fluid noticeably decreased. In all probability, some of the ingested Diodrast is absorbed from the fetal bowel into the blood stream of the fetus and is then carried by the umbilical arteries, through the placental barrier, to enter the maternal circulation. That another route of absorption is present is indicated by a case of fetal death reported here, in which the opacity of the amniotic fluid was also diminished and the Diodrast appeared in the maternal circulation. It is believed that the amniotic membrane actively absorbs the medium, although no proof can be given for this statement. In any event, 3 hours following its introduction the Diodrast is excreted by the maternal kidneys so that an excretory pyelogram is obtained. If the patient is instructed not to urinate during this interval, an opaque cystogram is obtained which reveals the intimate relationship between the urinary bladder and the still opacified amniotic fluid in the lower uterine segment. Granjon was the first to make use of this phenomenon. The relative frequency with which uterine and urinary tract abnormalities are associated makes the study of the pyelogram doubly interesting.

The author hopes that this report has shown both the diagnostic value and the harmlessness of amniography. It would certainly appear much less dangerous to use Diodrast in the amniotic cavity, whence it is slowly absorbed and eliminated, than to flood the circulatory system rapidly with this substance as is done in so many intravenous and intra-arterial studies. In none of the cases in the series reported was the least trace of any systemic reaction observed. It is true that the series of cases is small, but all the workers with this technic have strongly emphasized that they have found no injurious effects of any kind in either the mother or fetus. It also appears that the normal course of pregnancy is not altered in any manner. In no instance did an unwanted induction of labor follow amniography. (Radiology, Apr. 1953, E. M. Savignac)

* * * * * *

Change of Address

Please forward requests for change of address for the News Letter to: Commanding Officer, U. S. Navy Medical School, National Naval Medical Center, Bethesda 14, Maryland, giving full name, rank, corps, and old and new addresses.

The Hazards of Pregnancy in Women With Heart Disease

It is a terrible disappointment to a young woman to be told that, because she has a bad heart, it would be unwise for her ever to have children. Fortunately, in the great majority of cases, heart disease is no contraindication to pregnancy. The risk has in the past been grossly exaggerated, because writers on the subject have based their opinions on general impressions, which are notoriously fallacious.

In the author's clinic at the Manchester Royal Infirmary, during the last 25 years, the author and his colleagues have followed more than 1,600 patients with organic heart disease through pregnancy, labor, and the puerperium. Many of these patients have been followed through more than one pregnancy, and others have been kept under observation for a year or more after delivery.

In attempting to assess the probable risk of pregnancy in patients with heart disease, it is convenient to classify cases in three groups:

1. In the first group are those patients in whom the heart disease is so trivial that it does not add appreciably to the risk of childbirth. Provided they are kept under medical supervision, these patients rarely cause any anxiety.

2. The second is the largest group. It consists of patients in whom the heart disease is such that it does add appreciably to the risk, but the risk is not regarded as prohibitive. The more severe cases in this group call for much discrimination and judgment on the part of the physician. Many factors other than the severity of the heart disease, such as the age of the patient, the facilities for antenatal and postnatal care, and the number of children in the family, must be taken into account in arriving at an assessment.

3. The third and smallest group consists of those patients in whom the risk is obviously so great that it would be unwise to sanction pregnancy, or if pregnancy is already established termination should be advised. Unfortunately some patients in this group are not seen until pregnancy is far advanced, and the risk of termination may then be greater than the risk of allowing pregnancy to continue.

In assigning patients to their respective groups the author relied in the first instance, on an estimate of the functional efficiency of the heart, based on the patient's exercise tolerance prior to pregnancy. The author emphasizes the words "prior to pregnancy," for as pregnancy proceeds the tolerance for exercise diminishes, and if a patient is not seen until late in pregnancy a false impression may be formed of her cardiac disability.

Roughly speaking, Group 1 consisted of patients who had been able to undertake their household duties and other normal activities without breathlessness or other symptoms, while Group 3 consisted of those who had experienced one or more episodes of congestive heart failure prior to preg-

nancy and also those in whom the rheumatic process appeared to be still active, or the cardiac condition showed evidence of rapidly progressive deterioration. Patients whose mobility had been limited to a greater or lesser extent, but who had not actually been in failure and whose heart disease appeared to be quiescent, were placed in Group 2.

Not only must the risk to the mother be considered but also the prospect of a successful pregnancy which makes that risk worth taking. In the author's later series, 4 out of 5 pregnancies yielded living children, but of 53 patients with severe heart disease, who either refused termination or were first seen too late to terminate pregnancy, only 1 in 4 had a living child.

The chief dangers to be faced in patients with heart disease who are pregnant are acute pulmonary edema and congestive heart failure. The former calls for special vigilance because of the suddenness with which it may develop, and in every case of mitral stenosis clinical or radiologic evidence of pulmonary congestion must be regarded with grave apprehension. Congestive heart failure with edema, if recognized early, usually responds well to treatment.

Auricular fibrillation, though a recognized precursor of heart failure, is not necessarily a bar to pregnancy, provided adequate antenatal and postnatal care can be assured. In assessing the risk, the previous obstetric history, age, economic conditions, and temperament of the patient must all be taken into account.

In patients with heart failure, surgical intervention should never be contemplated until the heart failure has been treated. Patients with heart disease tolerate pelvic delivery better than cesarean section.

There is no purely cardiac indication for anticipating normal delivery.

All patients, however trivial their heart disease, should be kept under observation through pregnancy, and intercurrent infection and anemia promptly treated. (Brit. M. J., Apr. 25, 1953, C. Bramwell)

* * * * * *

The Exposure Treatment of Burns

During the past 3 years there has been renewed interest in the exposure treatment of burns. Extensive clinical trials by Wallace in Britain and by Blocker and the authors in this country have shown beyond reasonable doubt that this method of treatment has distinct merit in selected instances, and that it may be of inestimable value in the initial care of burns under disaster conditions.

This account of the exposure method is intended (1) to describe the authors' experiences in over 300 patients treated since December 1949, (2) to point out in what respects various centers differ in details of practice, and (3) to present an evaluation of the method.

When a patient with a burn whose configuration permits its complete exposure to air is admitted, he is placed on clean sheets, which are usually not sterile, and if shock is impending or already present, whole blood and electrolyte solutions are given in accordance with the formula proposed by Purnell and Evans. If severe pain is present, morphine is given intravenously. Crystalline penicillin, 400,000 units, procaine penicillin, 600,000 units, and tetanus antitoxin or toxoid are administered. As soon as the patient's general condition is stabilized, the early definitive local care is initiated. This may be done in the emergency room, on the ward, or in the operating room. Masks are not worn by the patient or those in attendance. All burned areas and surrounding intact skin are washed gently, either with a bland soap, or with a detergent containing hexachlorophene. Blisters are opened and all detached epithelium is cut away. The surface is rinsed with liberal amounts of water. No local applications of any sort are used. The patient is then placed in bed in the most comfortable position that completely exposes the affected areas.

Drying of the exudate is obtained in a position that provides complete exposure of all burned surfaces and maximal comfort to the patient. In most burns, this is possible without much difficulty. Procaine penicillin, 600,000 units daily, is given for 5 days. All properly exposed burns are dry in 48 to 96 hours. Because crusts are formed from drying exudate, they tend to be elevated above the intact skin. Deep dermal burns, whose exudation characteristically is scanty, form smooth crusts that are level with the intact skin. Eschars shrink owing to dehydration, and consequently are depressed below the intact skin. Crusts and eschars are usually indistinguishable by color.

Once the burns are dry, all efforts are directed toward avoiding injury to crusts or eschars on whose integrity the prevention of infection depends. Cracks are ready avenues for invading bacteria. If infection occurs, the crust or eschar surrounding the crack is usually lifted from the underlying tissue for a variable distance. Undermining infection can be prevented by trimming back the crust or eschar to where it is tightly adherent. In the first week, such areas often dry out again. Blocker covers these with a piece of fine-mesh gauze, and believes that this encourages drying. If suppuration is spreading, crusts or eschars must be removed immediately, and dressings must be applied.

Treatment by exposure ends in partial thickness burns when complete healing has occurred, and in full thickness burns when eschar removal has been achieved. This means that exposure is applicable only for the first 2 to 3 weeks, which represent only a short phase in the long period of treatment of an extensive deep burn. Most eschars should be excised in 10 to 14 days. In the early phases of the authors' study, excision of eschars was usually delayed until all the crusts had desquamated. Because deep dermal burns may require a long time for complete healing, grafting was unduly delayed in many instances. As more experience was gained, it was learned

that an eschar surrounded by crust of deep dermal burn can be excised, and that the full thickness area can be grafted before complete healing of the adjacent partial thickness burn. Very deep dermal burns with minimal associated full thickness injury frequently heal spontaneously in 30 to 40 days if the covering remains intact. In general, however, it is best to remove the covering of such burns if they fail to heal in 21 to 28 days, and to apply a skin graft. With an increasingly aggressive approach to eschars, the interval between burning and grafting has been greatly reduced, and it seems certain now that the exposure method, properly applied, does not delay grafting of deep burns.

The preparation of the recipient site for grafting is a problem common to the treatment of all deep burns, and is not particularly related to the type of early care that is given. Granulating surfaces should never be exposed. After eschar removal, the authors prefer to use moderate compression over bulky, absorptive dressings both before and after grafting, as has been recommended by Allen and Koch.

Exposure is indicated in all recent burns that can be completely exposed. It is easily applied, but the configuration of some burns may pose problems. Its outstanding feature is control of infection. Deep dermal burns heal uneventfully under crusts, which protect the burn from mechanical and bacterial trauma. The method is potentially dangerous in that it may encourage inexperienced personnel to delay skin grafting. Judiciously applied, exposure is as good as other methods and, in certain burns, it is definitely superior.

In times of disaster, adequate numbers of dressings and conditions suitable for their proper application would probably not be available. Exposure would then the the only feasible method of treatment, and it is, therefore, particularly gratifying to know that excellent results can be achieved by its use. However, the exposure method is not foolproof, and like all other forms of therapy, it demands careful attention to the body's physiologic requirements and to details of management. It is never an excuse for neglect. (Ann. Surg., Apr. 1953, Maj. C.P. Artz, MC, USA; Capt. E. Reiss, MC, USA; Capt. J.H. Davis, Jr., MC, USA; and Col. W.H. Amspacher, MC, USA)

* * * * * *

Ewing's Sarcoma

Ewing's sarcoma is a highly, though not uniformly, radiosensitive malignant bone tumor. It differs considerably from other tumors of bone although it may closely resemble osteogenic sarcoma in its radiographic appearance and may resemble osteomyelitis in both its clinical and radiographic aspects. Thirty-three (66%) of the 50 patients comprising this series, were under 20 years of age. The malignancy of Ewing's sarcoma appears

to vary considerably. Certain patients who when first seen already have metastatic disease may receive only a small amount of radiation and yet have a long-term survival. In the present group, of the 22 treated by radiation aimed at cure, 15 were locally controlled, and of these 4 survived for more than 5 years without disease. One patient is still living 4 years after the initial treatment but now shows distant metastases although the primary lesion has been clinically controlled.

Control of local disease by radiation compares favorably with that by surgical removal and entails no bodily mutilation. If metastases have occurred the salvage is as good and the patient's activity may be maintained at a more normal level. After radical operations only 1 of 10 patients survived for more than 5 years without disease; 2 lived for more than 3 years after operation before dying of the disease. None of 4 patients who had radical operations followed by x-ray treatment survived for more than 6 months. Of 14 patients who showed distant disease when first seen and whose treatment was palliative only, 1 lived for 3-1/2 and 1 for 7 years before succumbing to the disease.

In treating any tumor of bone, particularly Ewing's sarcoma, the radiologist should remember that the neoplasm extends longitudinally for a considerable distance beyond the area shown on the roentgenogram. Therefore, the area treated should be large regardless of the apparent size of the tumor; when possible, the entire bone in which the tumor is located should be irradiated. Carefully filtered x-rays of rather high voltage, preferably supervoltage, should be administered through sufficient portals of entry to bring about an adequate tumor dose.

In patients with distant metastases, as in those patients with an isolated primary tumor, radiation is undoubtedly the treatment of choice. It offers the patient palliation. Discomfort and pain can be relieved, and in many cases life is prolonged— not mere existence but moderately normal and active life. (New England J. Med., Apr. 2, 1953, C.C. Wang and M. D. Schulz)

* * * * * *

Bladder Tumor Recurrence in the Urethra

This article calls attention to a condition which the author believes has not been sufficiently emphasized. This condition is the recurrence of papillary bladder tumors in the urethra, following primary treatment.

Recurrence in the urethra has probably always occurred in a few scattered cases, but in the author's experience the incidence seemed to be definitely on the increase. He has seen 5 instances over the last 6 years, as compared to none in the 10 years preceding. Inquiry among a few close friends as to their experience brought variable replies. The author then mentioned the condition in the Urological Correspondence Club letter and

received a number of replies indicating that others in various parts of the country had noted similar occurrences.

The one main factor in all the cases in which this condition was observed was that the bladder tumor has been treated transurethrally, using the resectoscope, and in 4 out of 5 cases, transurethral resection of the bladder neck had been done at the same time. It is not unreasonable, particularly in view of the individual findings in some cases, to suspect this as an important etiologic factor. These tumor recurrences have usually appeared at the distal edge of the resected area.

The recurrent tumors with one exception, when identified, have been small and not too difficult to deal with. The inherent danger of the condition lies in the possible failure to discover such recurrences in their early stages on routine cystoscopic check-up. If allowed an additional 3- or 6-month period of growth, some of these tumors might begin to infiltrate the prostate and possibly even lead to dissemination before increasing symptoms had forced further diagnostic measures. It is possible that growth of such a tumor recurrence might necessitate radical cystoprostatectomy, whereas early recognition might have allowed simpler treatment. Most serious is the fact that involvement of the prostate has been shown to lead to a higher incidence of generalized dissemination than does infiltration of the bladder wall itself.

It is suggested that tumor resection and bladder neck resection be avoided at the same operation. Other measures which might be applied are thorough irrigation at the time of surgery and possibly the use of cell-destroying solutions. All check-up cystoscopic examinations should include thorough inspection of the posterior urethra. (J. Urol., May 1953, J. H. Kiefer)

* * * * * *

A Roentgenographic Classification of Tuberculous Lesions of the Kidney

Accurate comparisons of the effectiveness of new antituberculosis drugs will not be possible until better standards are established by which results can be judged. It is futile to compare percentages of bacteriologic "conversions" in patients who have massive necrotic kidney lesions with those of patients who have only tiny lesions of the kidney. The need for a standardized, accurate classification of the kidney lesions is particularly urgent in view of the small numbers of patients who can be treated and studied in the intervals before even newer drugs are discovered and the plan of treatment altered. This article, therefore, presents a roentgenographic classification of tuberculous kidney lesions which has been worked out and used by the Research Unit for Genito-Urinary Tuberculosis at the Kingsbridge Veterans Hospital in New York City and at Columbia University, during the

past 6 years. The vulnerability to criticism of data based on shadows cast, or not cast, on roentgenographic films has been recognized, and efforts have been made to minimize it.

Definite proof of tuberculosis, such as a urine culture positive for Mycobacterium tuberculosis, a positive guinea pig test, or positive histologic evidence after surgery, was demanded in all cases used in these research studies. Smears positive for acid-fast bacilli were not accepted for research purposes, although in clinical practice the presence of a positive smear together with classical roentgenographic signs of the disease might be considered sufficient grounds on which to initiate treatment. The isolation of Myco. tuberculosis on culture of the urine collected from the ureter was required of patients with equivocal roentgenographic changes, and was preferred in all cases. Treatment was sometimes started, however, on the basis of definite roentgenographic changes in the kidney and a positive culture from the voided urine. As soon as the diagnosis was established bacteriologically, the extent of the kidney lesions was estimated from the roentgenographic findings.

The kidney lesions were classified into 5 groups, according to the extent of the visible tuberculous changes: Group O was made up of kidneys which showed no pyelographic abnormalities whatsoever. All kidneys of Group O discharged pus cells and had been proved to be tuberculous by the culturing of tubercle bacilli from the ureteral specimens. Group 1 consisted of those kidneys which showed a slight but definite roentgenographic abnormality of the pelvis, calyces, or upper ureter. Kidneys without visible calyceal changes, but which showed persistent deformities of the pelvis or ureter, were placed in Group 1. Group 2 was made up of those kidneys proved to be tuberculous which showed a distortion of as little as a single minor calyx, but with a roentgenographic appearance typical of tuberculosis. Group 3 consisted of tuberculous kidneys, roentgenograms of which showed two characteristically altered calyces or two large areas of involvement, such as cavitations, calcifications, or segments of nonfunctioning parenchyma. Group 4 was composed of kidneys, the roentgenograms of which showed massive tuberculous lesions involving three or more calyces. (Am. Rev. Tuberc., May 1953, J. K. Lattimer)

* * * * * *

The Management of Malignant Hypertension

Hypertension varies strikingly in its clinical course. One of the unexplained vagaries of this condition is the fact that in some instances the disease may be most benign, with little vascular deterioration for a period of 10 to 20 years, while in other cases such deterioration may occur within a few years. One variety of hypertensive disease has been singled out as being particularly ominous and has been designated as malignant, because the down-

ward course is usually measured in months rather than in years. Occurrence of the malignant phase may be detected by the appearance of papilledema, although in some cases the blood urea nitrogen may rise prior to the development of papilledema. Not all patients with hypertension whose course is rapidly downward have papilledema. In a recent study of the prognosis of hypertension with papilledema, the authors found that only 3 of 91 patients who received symptomatic treatment alone survived 30 months.

The first step is rapid investigation to determine (1) the presence of a correctable etiologic agent or condition, and (2) the functional integrity of the vital organs, particularly of the kidney and the heart. Correctable-reversible conditions in which malignant hypertension may occur include: unilateral atrophic kidney, often with pyelonephritis; pheochromocytoma; visceral angiitis; unilateral hydronephrosis; Cushing's disease; acute glomerulonephritis; coarctation of the aorta; and polycystic kidneys.

The prognosis of malignant hypertension is no longer hopeless with modern therapy, particularly if treatment is instituted prior to the stage of severe renal impairment.

The most effective medical management at the present time appears to be the use of hexamethonium by parenteral injection, combined with the oral use of Apresoline, low sodium diet, and adequate attention to the emotional needs of the patient. The newer veratrum alkaloids, such as protoveratrine, are also of value.

A combination of hexamethonium given orally and Apresoline may prove to be as effective as the combination suggested previously, but, in view of the work of Kilpatrick and Smirk, this remains to be proved.

When the new antihypertensive agents are used the patient should be under close medical supervision (preferably in the hospital) when the treatment is initiated, and great care should be exercised to avoid hypotensive reactions.

Sympathectomy is an effective form of therapy for malignant hypertension in the presence of normal renal function; the accelerated phase is reversed in 30 to 50% of patients. (Ann. Int. Med., Apr. 1953, M. Sokolow and M. F. Schottstaedt)

* * * * * *

Oral Hexamethonium in the Therapy of Hypertension

Numerous drugs are available which are capable of reducing blood pressure in patients with hypertension. However, practical therapeutics with many of these compounds is limited because of the development of tolerance, the presence of untoward side effects, or because these agents are destroyed in the gastrointestinal tract and must, therefore, be given parenterally. Preliminary observations indicated that hexamethonium

chloride when administered orally, was an effective agent for reducing the blood pressure in patients with hypertension. This report presents observations on this compound over an extended period of time and compares these results with those of other hypotensive agents used in the same clinic. Patients treated with hexamethonium, but in whom adequate regulation of the blood pressure was not obtained, were treated with a combination of Apresoline and hexamethonium. These observations are also presented. The studies were conducted on an outpatient basis.

The results obtained with hexamethonium chloride administered orally for the treatment of 58 patients with hypertension are summarized. The patients in this study were followed from 4 to 16 months following the induction of therapy. The conditions of patient care closely paralleled those which are met in a general office practice. Therefore, the results obtained in the present study should closely parallel those obtained in a general office practice provided that the therapist understands the pharmacodynamics of the drug and pays strict attention to the regulation (titration procedure) of a dosage schedule which is an individualized problem in each patient. There is no set dose and the dose must be titrated in each patient in order to establish maximum blood pressure regulation. If this is not done, excessive hypotension and serious complications may result.

Hexamethonium chloride when administered orally is an effective agent for reducing the blood pressure. Of 58 patients treated, all but 11 responded with a significant (mean blood pressure decreased more than 20 mm. Hg) reduction in blood pressure and in about one-half of the patients the upright blood pressure returned to normal limits. The amount of drug required was only slightly greater in the patients with diastolic blood pressures above 140 mm. Hg as compared to those with pressures less than 120 but more than 100. No difference could be detected between the unresponders and those who responded except that patients with severe hypertension complicated by cardiac failure and moderate to marked renal disease seemed to be particularly resistant to therapy.

Cerebrovascular disease and heart disease (cardiac failure, angina pectoris) seem to be particularly benefited by a reduction in blood pressure with hexamethonium. The renal vessels dilate and maintain renal blood flow and glomerular filtration rate about equal to the control observations in most instances. Damaged kidneys respond in essentially the same way the normal ones do. Therefore, impaired renal function (even if uremia is present) is not a contraindication to hypotensive therapy. However, in the presence of renal damage, glomerular filtration is critical and small changes may precipitate frank and progressive renal failure. This demands that in the presence of moderate to marked impairment of renal function, reduction in blood pressure must be undertaken with extreme caution and with constant evaluation of renal excretory function. Any tendency toward an increase in blood urea nitrogen is a contraindication to further reduction in blood pressure.

If close supervision and repeated evaluation of the blood urea nitrogen is not feasible, then hypotensive drug therapy with hexamethonium is definitely contraindicated.

The combined administration of Apresoline and hexamethonium further improved the blood pressure regulation in 11 of 18 patients in whom adequate control was not obtained with hexamethonium alone. Apresoline is indicated as an adjunctive therapeutic agent in those patients who do not obtain adequate reduction in blood pressure to hexamethonium alone.

Hexamethonium chloride was superior to other orally active hypotensive agents used in the same clinic under similar circumstances. Dibenzyline produced somewhat comparable results initially but proved to be inferior to hexamethonium as a long-term therapeutic agent. This was due largely to the inability of this drug to block off the sympathetic innervation to the heart resulting in reflex tachycardia following blood pressure reduction. The tachycardia was particularly marked in the upright position. (Am. J. M. Sc., Apr. 1953, J. H. Moyer, H. B. Snyder, I. Johnson, L. C. Mills, and S. I. Miller)

* * * * * *

Evaluation of a New Agent in the Treatment of Parkinsonism

This is a report of the author's experience in treating 102 patients with this medication during the past 2 years. Chemically the compound is 1-phenyl-1-cyclopentyl-3-piperdino-1-propanol hydrochloride. It has been designated by its manufacturer as compound 08958. Pharmacologic studies indicate that compound 08958 is an active antispasmodic agent with fewer side effects than atropine. The compound is slightly, but impressively, more toxic than atropine in mice and rats by either oral or intravenous administration.

Compound 08958 was administered by the author and his colleagues for varying periods of time to more than 116 patients during the past 2 years. One hundred and two of the patients were observed sufficiently to warrant inclusion in this report. There were 32 women and 70 men included in this study; 26 had postencephalitic parkinsonism and 76 had parkinsonism of undetermined origin. Patients with other movement disorders were also treated, but are not included in this report. The patients varied from 23 years of age to 76 years of age; 3 were in the third decade of life, 10 in the fourth, 19 in the fifth, 33 in the sixth, 26 in the seventh, and 11 were more than 70 years old. All patients included in this series were treated for more than 3 months and 50 of them were treated for more than 1 year. In the author's experience, patients with minimal parkinsonism are seldom benefited by available treatment and for that reason they were not included in this study. Moreover, none of the patients included were bedfast. The symptoms of illness had been present for less than 1 year in 8 cases, 1 to 5 years in 32, 5 to 10 years in 39, and longer than 10 years in 23 cases.

Ninety of the patients included in this series had previously received adequate medication.

The patients were studied neurologically and had complete physical examinations at the time their medication was started. Those patients who had obtained inadequate relief from previous medication or, in a few instances, those who had had no previous medication were chosen. All patients were observed originally for a period of 3 days to 2 weeks in an attempt to evaluate objectively the effect of the medication. Objective studies included observation of (1) speed of finger movement, (2) handwriting, (3) the ability to get up and out of a chair, (4) a gross evaluation of tremor, and (5) a neurologic evaluation. Because of what appeared to be the obvious limitations of any objective test in an illness as psychosensitive as parkinsonism, the author thought it necessary to attempt also to evaluate the patient's total adjustment to his environment by questioning him or her and his relatives about the patient's performance in the well-learned motor habits such as dressing, eating, et cetera. In those patients who demonstrated objective improvement the medication was continued except that in certain patients placebos were given in a further attempt to evaluate the medication.

The patients who received compound 08958 were, in most instances, re-examined at intervals of 1 to 6 months. In all cases complete blood counts and urinalyses were obtained at the end of the first month and a report was obtained from the patient or his physician at monthly intervals.

Compound 08958 is at present available in 2.5-mg. tablets and 5.0-mg. tablets. The author found it most satisfactory to begin treatment with 1.25 mg. of 08958 3 times a day. This dosage is gradually increased over a period of several days to 2.5 mg. 3 times a day. The optimal dosage for most patients is between 7.5 and 15.0 mg. a day. In most patients this dosage is not associated with toxic symptoms. An occasional patient noted improvement on as little as 2.5 mg. per day. A few patients with postencephalitic parkinsonism received as much as 30 mg. of compound 08958 daily for as long as 2 years with no side effects.

The results suggest that compound 08958, chemically related to artane, is similar to artane in its physiologic effects. It has proved to be a partially effective drug in the control of rigidity in parkinsonism and has given patients relief of their symptoms which, in some instances, has proved to be more satisfactory than that found with any other medication. In no instance did this medication alter the progress of the illness or give more than partial relief of symptoms. Difficulties in evaluation of therapy in parkinsonism are many and well known. They stem from a variety of factors which have been previously reported: the illness is chronic, progressive, and incurable; the illness is notoriously psychosensitive and is subject to wide and rapid variation in severity depending in part on the state of mind of the patient; also medications available are relatively ineffective and at best afford only 35 to 25% relief of symptoms; and finally the insistance and need of the patient

for a cure combined with the physician's desire to help frequently obscure the latter's judgment. Because of the limited value of any of the present medications in parkinsonism, it is essential that the medication used will not cause serious side effects. Unfortunately all the medications now available may at times cause such side effects. This is also true of compound 08958. It is, therefore, necessary for the physician to use this medication cautiously and to maintain direct contact with the patient in order to avoid the toxic side effects which occur, particularly in the older age group, during administration of compound 08958. The physiologic basis for relief of symptoms in this syndrome is not understood. It is significant that the synthetic antispasmodics may give symptomatic relief and it is possible that further investigation of other antispasmodics may reveal a more satisfactory drug.

Treatment in parkinsonism is only partially satisfactory if medication alone is depended on. It is of the utmost importance that each patient be aided in readjusting his life so that he may adequately live with his illness. With this reorientation, a great many patients continue working for a considerable period and often are able to make a satisfactory contribution to society. The use of supervised therapeutic exercise to maintain range of movement about the joints, correct postural abnormalities, and improve the gait is of considerable value both psychologically and physiologically. (Proc. Staff Meet., Mayo Clin., Apr. 8, 1953, D. W. Mulder)

* * * * * *

Poliomyelitis Research

A research finding that should have immediate effects in assisting diagnostic laboratories, including many State Health Departments, to a cheaper and quicker method of diagnosing poliomyelitis cases has been announced by the Public Health Service of the U. S. Department of Health, Education, and Welfare.

The finding is the adaptation to growth in experimental mice of the third of the three known strains of polio virus, the type believed to be the cause of most of the cases of human polio.

The discovery was the work of Dr. C. P. Li and Dr. Morris Schaeffer, both of the Virus and Rickettsia Laboratory in Montgomery, Ala. The complete report of their work is published in the current issue of the Proceedings of the Society for Experimental Biology and Medicine.

With the completion of this phase of the research, all three of the polio virus strains have now been adapted to mice by Public Health Service scientists, either at the National Institutes of Health, in Bethesda, Md., or in the Montgomery laboratory.

The discovery has several specific results. It makes possible demonstration of the serum antibody response in a polio case through a relatively simple mouse test, and it will permit a more readily available, accurate diagnosis of polio specimens by materially reducing the cost of antibody studies.

It will also reduce the cost of epidemic studies, making possible a better understanding of the mode of spread of the disease and how it can be prevented, through surveys for the presence of antibodies. And finally, it contributes a valuable new tool for the assessment of gamma globulin and vaccination methods soon to be weighed for their value in the prevention and control of polio.

In effect, the finding provides another simplified method that has been needed in the polio research field. This new diagnostic tool can now be added to the tissue-culture method, which has come into considerable use since its discovery in 1939.

The prospect of additional services to the State Health Departments in polio diagnosis in the near future is an especially important part of the picture. Previously, because of prohibitive cost, the Montgomery virus laboratory was not in a position to give diagnostic support in epidemiologic studies to State laboratories. With this and other progress in polio research, the laboratory now hopes to be able to offer additional consultative services and diagnostic help to these laboratories. (May 1953, H. E. W.)

* * * * * *

Resilient Plastic Replicas of Pathological Specimens

Teaching, research, and similar activities are difficult and at times almost impossible to accomplish in such fields of medicine as pathology, radiology, and surgery, when demonstrations of surgical pathology depend on photographs, drawings, and formalin-fixed specimens.

Results of previous attempts to reproduce models of gross specimens have been unsatisfactory, owing to the nature of the materials used (wax, plaster of Paris, metals) and the trauma inflicted upon the tissues prior to histopathologic examination.

In the course of a recent clinical investigation, a plastic substitute was used to make replicas of the gross pathologic specimens under study. The accuracy of reproduction, the flexibility of the model, and the simplicity of technique all proved highly satisfactory. The technique is completely harmless to all body tissues and the replica can be made in a short time. The lack of harm to body tissue permits the routine pathologic examination of the specimen to proceed without the complications of delay or histologic distortion.

The fabrication of the plastic replica is accomplished as follows: (1) An impression of the defect and the surrounding area is taken with alginate.

(2) High-heat investment material is poured on the impression, from which an investment model is formed. (3) The investment model is repeatedly dipped in wax until the wax layer is approximately 3 mm. thick. (4) The model with its layer of wax is embedded in high-heat investment. (5) The wax is boiled out, and the mold is dehydrated. (6) The mold is cast in Linotype metal. (7) The resilient plastic replicas of surgical pathologic specimens are processed on the metal mold. (Unpublished report of research conducted at the National Naval Medical Center, Bethesda, Md., Mar. 1953, C. M. Peck and J. V. Niiranen)

* * * * * *

The Speaking Method in Measuring Vertical Dimension

The exact measurement of the natural vertical dimension is most essential in the successful practice of dentistry. It is now possible by the use of the speaking method to measure a patient's vertical dimension before the loss of the remaining natural teeth, and to record this in terms of millimeters, and to reproduce this measurement in full dentures at a later date.

The method includes the following steps: (1) The patient is seated in an upright, comfortable position without aid from the chair; (2) The patient is directed to close in centric occlusion—this position is marked on the labial of the mandibular anteriors; (3) The patient is directed to say "yes" and while the phonetic sound "s" is being pronounced, the closest speaking line is marked on the same mandibular anterior tooth. The distance between the centric occlusion line and the closest speaking line is called the closest speaking space. The closest speaking space is the measurement for vertical dimension.

The closest speaking space may vary in different individuals, ranging from 0 to 10 mm. This proves that there is no such thing as "an average" in measuring vertical dimension. The closest speaking space, it is thought, should be constant throughout life. (Journal of Prosthetic Dentistry, Mar. 1953, M. M. Silverman)

* * * * * *

The printing of this publication has been approved by the Director of the Bureau of the Budget, June 23, 1952.

* * * * * *

Depth of Focus and Amplitude of Accommodation Through Trifocal Glasses

Many studies have been made of the "amplitude of accommodation" in presbyopia, but there has been little attempt to measure its component parts. Because it is a complex of active accommodation, depth of focus, and interpretation or suppression of blur fringes, the old term should be changed to "range of clear vision."

Measurements of the range of clear vision on test types could be improved by any device which could produce a constant visual angle and brightness contrast at various visual distances. However, the presbyopic patient, whatever his occupation, may develop a tolerance to blur and poor contrast, so that experimental results might not be greatly different from those reported here. Such adaptation to presbyopia may explain the tendency of some patients to reject full correction. Patients who wear glasses only part time may prefer a blurred image at both distance and near. On the other hand, those habituated to glasses may complain of a 0.12-D. error.

This study showed the importance of depth of focus, the state of ciliary tone, and the tolerance to blurred imagery in presbyopia. Even in early stages, active accommodation is unimportant, or is not much used. It has long been accepted practice to give + 0.50 D. "rest glasses" to emmetropic students complaining of reading difficulties. No one would hesitate to change the glasses in a patient wearing a reading addition of + 1.25 D. if vision is much better at the same distance with + 1.75 D. Why is a + 0.50 D. addition so seldom prescribed in early presbyopia with the same handicap? The practice in this regard has resulted in gradual loss of pleasure in reading in the evenings, or in a loss of work efficiency. It also has resulted in needless difficulty in learning to use bifocal glasses, when the first reading addition has to be + 1.50 D.

The ranges of clear vision through multifocal glasses are derived from (1) effort-free accommodative tone, (2) true active accommodation, (3) depth of focus, and (4) suppression of blur fringes. These factors were studied by two methods: blur limits of vision on test types, and stigmatometry. The distance of conjugate focus of each eye of 25 presbyopic patients was measured through trifocal lens powers for binocular vision on test type at distances of 40, 80, and 600 cm. At the same time, the depth of focus on a point of light target was measured for each eye at the three distances.

The results showed that active accommodation is less important for clear comfortable vision in presbyopia than was formerly believed.

Reading additions of + 2.50 D. or more should be prescribed only when the reading distance is less than 40 cm., when there is esophoria, or when magnification would help poor visual acuity. Asthenopia is less frequently due to accommodative errors than to heterophoria introduced by multifocal

lens segments. Determinations of reading addition and near heterophoria are more exact and physiologic when done through bifocal trial lenses in the rear cell of the trial frame.

Because a patient who is wearing a + 1.25 D. addition but needs + 1.75 D. is advised to get new glasses, the same benefit should be granted in early presbyopia when the requirement is only + 0.75 D. The same reasoning applies to vision in the intermediate distance, which requires less addition than that in the reading position. (Arch. Ophth., Mar. 1953, P. W. Miles)

* * * * * *

Urethane in Chronic Glaucoma

Urecholine is one of a group of choline esters that act principally by producing the effects of stimulation of the parasympathetic nervous system. Urecholine is a cholinergic agent simulating acetylcholine in its action, but it is not as rapidly destroyed by cholinesterase. As it is the urethane of beta-methylcholine chloride, it thus combines the two components that individually render mecholyl and doryl more stable than acetylcholine in tissues. The compound is possibly the longest acting miotic and the most potent of this choline series. Even in dilute solutions, it can be autoclaved at 120° C. for 20 minutes without any discoloration or loss of potency.

Its use in ophthalmology has been limited and it is rarely mentioned in ophthalmic literature. Swan has mentioned some experience with it in a few cases of chronic noncongestive glaucoma, and Sugar includes it in his list of cholinergic miotic agents. No report was found comparing urecholine with pilocarpine, eserine, or doryl in the control of chronic noncongestive glaucoma.

Up to the present, urecholine has been used widely in postoperative urinary retention, abdominal distention, gastric retention, and megacolon. Because of its potential value in the medical therapy of glaucoma it was tried in a series of cases of chronic glaucoma at the Wills Hospital.

Comparisons were made with other cholinergic agents, namely pilocarpine, nitrate and hydrochloride, and carbaminoylcholine chloride (doryl), as well as with physostigmine, an anticholinesterase.

From the results in this series of 42 eyes, the following conclusions may be made with regard to urecholine (1%): Urecholine in 1%-concentration approximates pilocarpine (1 to 2%) and doryl (0.75%) in the therapy of chronic noncongestive glaucoma. Urecholine (1%) was not effective in glaucoma secondary to venous occlusion. Urecholine has the following disadvantages: Mild allergic reaction in 1 of 42 eyes; there is the possibility of bronchoconstriction in asthmatics, but no instance of this occurred in this series;

ciliary spasm may occur but it is not marked. It appears to be an effective and safe miotic that may possibly be useful as a substitute for pilocarpine or doryl in chronic glaucoma. (Am. J. Ophth., Apr. 1953, F. Frisch and I. H. Leopold)

* * * * * *

Infantile Cortical Hyperostosis

The term "infantile cortical hyperostosis" or "Caffey-Smyth syndrome" has been given a new group of findings: (1) tender swelling deep in the soft tissues, (2) cortical thickening in the skeleton, and (3) onset during the first 3 to 6 months of life, although cases have been reported as late as 20 months. The soft tissue swelling is deep and firm; there is no pitting on pressure, no undue heat or discoloration. Occasionally lymphangitis or lymphadenitis occurs in conjunction with the swelling, the latter always being noted at the same time as the hyperostosis.

In these cases, the bone most frequently involved is the mandible; however, the clavicle, scapula, ribs, and tubular bones of the extremities can also be affected. The involved bone shows cortical hyperplasia under a proliferating periosteum. Usually several bones are affected in the same individual but cases have been reported in which only one bone has been involved.

There may or may not be fever; the temperature curve may assume almost any pattern although the temperature itself rarely exceeds 103° F. Oddly enough, some of the cases that manifest the severest clinical findings carry a relatively low temperature curve. "Visible" and "palpable" tender swellings have been present in all cases and constitute the most consistent observation. One usually has to obtain the date of onset of the swelling from the parents which doubtless accounts for the varying descriptions seen in the literature. However, it is thought that the swellings occur rather rapidly and subside very slowly. The most common sites of swelling of the face are at the areas anterior to the parotid region and at the angle of the jaw. No intraoral changes have been noted to date and the overlying skin appears normal. Although the mandibular hyperostosis with its overlying deep tender swelling is seen most commonly, it is possible for only one extremity to be affected, without facial involvement, and vice versa. The onset of the disease usually is accompanied by hyperirritability, crying, or other signs of pain on movement of the involved part, associated with some type of fever.

Anemia, an increased sedimentation rate, and leukocytosis are the most common laboratory findings to date although blood serology tests, ascorbic acid determinations (urine and blood levels), agglutination tests, blood cultures, and calcium, phosphorus, and phosphatase tests should be done to rule out other causes.

On roentgenography the basic change is external thickening of the cortical bone, sometimes lamellated. These changes are usually demonstrated from 2 to 5 weeks after the appearance of the soft tissue swelling. It can be differentiated from scurvy because of the subperiosteal hemorrhage, also because periosteal thickening starts at the cartilage shaft joint in the latter condition, and the usual area of osteoporosis at the provisional line of calcification that is seen in the long bones is not present in infantile cortical hyperostosis as it is in scurvy.

Insofar as etiology is concerned, lesions of osteoperiostitis may be classified as inflammatory, traumatic, metabolic, or neoplastic. In all probability, inflammation is the most likely choice as to cause because in almost all of the cases reported fever has been a symptom. Kane and Borzell have suggested that this new syndrome really may be infectious osteoperiostitis.

The age of the patient and the onset usually render the disease difficult to diagnose in its early stages and, at the same time, parotitis, hypervitaminosis of vitamin A, osteomyelitis of the mandible, neoplasm of the mandible, scurvy, rickets, leukemia "with the anemia and fever that exist," rheumatoid arthritis, and syphilis should be kept in mind.

The disease is self-limiting, ending after several weeks, usually without complications. Persistent facial swellings and diaphragmatic paralysis have been reported in some cases. The cortical thickening gradually subsides and after a few months disappears completely. Practically all cases reported to date have recovered. The use of antibiotics, chemotherapy, and other forms of treatment has been of no value. (Am. J. Surg., May 1953, C. Litton)

* * * * * *

Measles Encephalomyelitis

The usual signs and symptoms leading to a diagnosis of measles encephalomyelitis are well known, but the authors believe that one of the earliest signs, that heretofore has received little emphasis, is the sudden cessation or depression of the typical measles cough. This finding was noted in 74% of the authors' patients. The cough reflex depends upon stimuli from the respiratory epithelium passing along the afferent fibers of the vagus nerve through the nucleus of the tractus solitarius and thence along descending fibers to the spinal primary motor neurons and final discharge to the diaphragm, the intercostal and abdominal muscles, and the glottis. In measles encephalomyelitis involvement of the tractus solitarius will break this reflex arc with sudden cessation of coughing. In view of the authors' observation, this sign during the active phase of rubeola should warn the observer of an impending encephalomyelitis when reinforced with other confirmatory signs of cerebral or spinal involvement.

The authors further stress that no medication containing codeine should ever be given to depress the cough of rubeola. They have observed instances of codeine intoxication that have occurred in the past 2 years. These patients were admitted to South View Hospital because of a supposed measles encephalomyelitis exhibiting convulsions, lethargy, vomiting, nuchal rigidity, cyanosis, and fever. In each instance the spinal fluid findings were normal, and the patient recovered completely within 24 hours after oxygen and helium therapy was instituted. Anoxia following the prolonged administration of codeine may well have been a factor.

The treatment of measles encephalomyelitis remains largely symptomatic. General anesthesia, barbiturates, magnesium sulfate, and hypertonic dextrose solutions all have been administered in an attempt to reduce cerebral edema and control convulsions. Convalescent serum has been of questionable value.

Good supportive therapy and nursing care are essential to the welfare of these patients and do affect the ultimate mortality rate.

Seventy-seven cases of measles encephalomyelitis are reported with a mortality rate of 28.6%. Sixty-two percent of the patients studied were between 4 and 7 years of age, inclusive. The onset of encephalomyelitis occurred 3 to 4 days after the appearance of the morbilliform rash in 46% of the patients. Coma or convulsions or both occurred in 68% of the patients who died. A diminished or absent cough reflex was one of the earliest signs noted in 74% of the patients. Where follow-up was possible, 61% of the patients have recovered completely. Autopsy findings are reported in several cases. (Am. J. Dis Child., Apr. 1953, M. J. Fox, J. F. Kuzma, and J. D. Stuhler)

* * * * * *

Rehabilitation in Malum Coxae Senilis

Three outstanding features govern the clinical picture of malum coxae senilis: (1) the pain, (2) the deformity, and (3) its intimate relationship to the process of aging. While the deformity is mainly related to etiologic factors, the pain is necessarily related to both the deformity and the process of aging.

The method of rehabilitation advanced in this study disregards the factor of etiology, and regards the deformity only insofar as it is connected with the causation of pain and disability. The deformity consists of two main factors. One is the subluxation with the greater trochanter riding high; the other is the contracture. In the majority of cases the lower extremity is in flexion-external rotation-adduction, although extension forms have occasionally been encountered. Subluxation and the changed position of the greater trochanter are final traits with limping, because the gluteus medius becomes

so unfavorably situated that it cannot achieve the elevation of the pelvis during the phase of gait when the healthy extremity performs its swinging maneuver. In the latter the adduction contracture of the affected hip also plays a part because no true elevation of the swinging side of the pelvis can be brought about without simultaneous abduction of the hip of the standing side. Pain is the least important of the factors causing limping. It has been shown that, although pain subsided and did not recur even in follow-ups after several years, the limping remained.

Five factors have been taken into consideration in the development of the present method of therapy, now universally applied in all localizations of degenerative arthritic conditions either in single joints or in the spine: (1) the contracture; (2) the venous congestion and the edema; (3) the false conception of the physiology of the articulations; (4) the false conception in the interpretation of the x-ray and pathologic anatomic findings; and (5) the role of the process of aging.

The theoretical foundation of the method seems to be sound if for no other reason than the excellent results enabling formerly incapacitated persons to resume and carry on their former occupation with as little discomfort as possible in a serious, chronic, crippling condition.

After a critical review of the surgical methods in the treatment of malum coxae senilis, a conservative method of rehabilitation is presented. It consists of permanent elevation of the foot of the bed by 2 to 4 inches, daily exercises, a laceable elastic brace supporting the pelvis and thigh, which is reinforced with extensor and flexor elastic straps. Built-up shoes and arch supports complement the treatment.

In over 140 cases rehabilitation has proved successful. Patients have resumed their former occupations without pain and with a good range of active mobility, although persistent limp remains.

The method was also applied in sciatica, frozen shoulder, and in the management of the residual paralysis in poliomyelitis. (Geriatrics, Apr. 1953, A. Farkas)

* * * * * *

Control of Infections Associated With Obliterative Arterial Disease

Infections are prone to develop in the presence of obliterative arterial disease despite current methods of treatment including the use of antibiotics. This is due in part to the fact that sufficient concentration of drug cannot be carried to the tissues by the partly occluded arterial tree. Once infection is superimposed upon tissues already compromised by vascular insufficiency, it adds to the vicious process by further destruction of cells, increasing the likelihood of thrombosis and in some instances by inducing increased reflex

vasospasm. Antibiotics are not effective in the presence of necrotic tissue and its adequate and complete removal is a prime requisite to successful therapy. If the infection is allowed to advance into inaccessible tissue planes proper debridement can be accomplished only by amputation. Certain extremities that succumb to the combined action of vascular insufficiency and infection and in which the latter process is a prominent feature will survive if the infectious process can be controlled. Of 319 patients with obliterative arterial disease and diabetes mellitus operated on by McKittrick and his associates for infection of a lower extremity, careful observation of the arterial supply convinced them that although not normal, it was adequate. Edwards states that despite systemic antibiotics, uncontrolled spread of infection with consequent added susceptibility to thrombosis was the initiating factor in the decision to amputate extremities of many of his patients. McKittrick and Root and Williams and O'Kane have evolved classifications based on clinical observations which help to demonstrate whether infection or arterial insufficiency is the predominant factor in each lesion. Otherwise, the literature is apparently lacking in appreciation of the two distinct pathologic entities which may be present in these ulcerations.

This article presents observations on 21 patients in whom a special attempt was made to control the infectious component of the disease. One of the foremost problems in this respect was to get the proper antibiotic to the site of infection in the correct concentration.

All except 1 of the patients were receiving either penicillin, streptomycin, gantrisin, or one of the other broad spectrum antibiotics systemically at the time they were first seen. This treatment was continued in all except 3 patients. Antibacterial agents for both systemic and topical administration were chosen on the basis of the bacterial flora aided by routine sensitivity tests by the filter paper disc technic. In special instances, additional sensitivity studies were carried out by using the serial dilution method of Rammelkamp. Antibiotics were given systemically either alone or in combination as indicated. Penicillin was used most frequently (18 patients) with streptomycin next (7 patients). Chloramphenicol was used 3 times and terramycin and aureomycin once each.

A solution of 5% sulfamylon containing 200 units of streptomycin per milliliter as advocated by Howes, was found to be the combination of choice for topical treatment in 12 instances. Glycerite of hydrogen peroxide with 4% urea was used in 3 patients; a 10% aqueous solution of urethane in 3; penicillin, 1,000 units per milliliter in saline, in 2; and bacitracin, 500 units per milliliter in 2. Streptokinase and streptodornase were used as an aid to debridement in 1 necrotic ulcer containing fibrin and pus. A surgical soap containing G-11 was used in 3 instances for its antiseptic value.

All the usual supportive methods such as bed rest, Buerger's exercises, and careful aseptic measures were carried out as indicated in conjunction with the antibacterial therapy.

In infections which persist and advance despite adequate care and systemic antibiotic therapy and in which vascular insufficiency is minimal, the addition of properly applied topical therapy to the usual supportive measures and systemic antibiotics can control the infectious component and result in healing. The average time required for clinical control of the infection by the method outlined in a group of 4 cases was 5.5 days.

When the infectious and vascular components of obliterative arterial disease are relatively equal, a combination of good surgical care, topical antibacterial therapy, and systemically administered antibiotics can control the infectious component of the disease. The average time required for control of the infection in a group of 9 cases was 8.1 days. Following control of the infection, the necessity for sympathectomy or amputation will depend upon an evaluation of the degree of underlying vascular disease.

Chemotherapy is of no value in the control of the local disease process in advanced infections of the feet when the vascular component is predominant and the requisites for successful topical therapy cannot be fulfilled. When the requisites can be satisfied the infectious component may be controlled but this cannot be expected to influence definitively the ultimate healing of the lesion or prevent the necessity for amputation in this group of cases. Antibiotics may be of considerable value in preventing further spread of infection or complications. (Surg., Gynec. & Obst., May 1953, C. W. Howe and W. C. Wigglesworth)

* * * * * *

Plantar Warts

Injection of plantar warts with 1% novocain relieved symptoms in 95% of cases and cured the warts in 73% of cases in a series of 48 patients with this condition. The simplicity and ease with which the treatment can be given and the absence of disability and pain recommend this method. All treatments were given on an outpatient basis except in an occasional severe case with multiple warts.

It has been possible to follow 30 of these 48 patients for 6 months. Of these 30 patients, 22 were cured. In 7 cases a plantar wart was still present but was asymptomatic. Only 1 patient demonstrated no improvement after 3 injections; in this case the wart was successfully excised. Three patients in the series had extensive plantar warts of the mosaic type and were cured. One of these had approximately 30 warts involving the entire plantar surface of the left foot, and treatment by any of the currently accepted methods would have been extremely difficult.

The treatment consists of the injection of 2 or 3 cc. of 1% novocain under pressure into the base of the wart in the stratum germinativum layer of the epidermis. Best results are obtained with the use of a 26-gauge needle and a Luer Lock dental syringe for injection under pressure. Two important

points should be observed: the needle should penetrate to the stratum germinativum through normal skin at the side of the wart; and only 1 needle puncture should be made because the injected fluid escapes through multiple holes and sufficient pressure cannot be obtained. If the needle is properly placed, there is considerable resistance to injection, and the desired marked blanching of the skin and elevation of the wart will result. If the needle is too deep, there is little resistance to injection and no blanching and elevation of the skin will occur, and no cure will result.

Patients usually become symptom-free within 24 hours. In 5 to 7 days the wart becomes soft and darkened. Usually, it can be lifted out with thumb forceps after a week, provided that the injection has been properly made. In a few cases 1 or 2 subsequent injections may be necessary, but in the meantime the patient is generally free from pain.

Follow-up care includes, of course, correction of any chronic foot infections, cleanliness in patients with hyperhidrosis, and use of a well-fitted plantar arch support in patients with the wart under the metatarsal heads. (New England J. Med., Apr. 9, 1953, Capt. E.C. Branson, MC, USA and Col. R.L. Rhea, Jr., MC, USA)

* * * * * *

Previous Education and Age as Related to Grades in The U.S. Naval School, Pre-Flight

Carefully selected cadets with only high school education can successfully complete the Navy's Pre-Flight School if they are properly motivated. This information is the result of a research study performed on over 2,000 students at the U.S. Naval School of Aviation Medicine, Pensacola, Fla. Cadets chosen for flight training from among enlisted ranks performed essentially the same as college graduates even though they had only high school backgrounds. In fact, these men actually did better on the average than cadets who had had some college but had not finished. Although the Navy has long required civilian applicants for flight training to have 2 years of college for entry into the training program, this study suggests that high school graduates, highly selected and well-motivated, can do creditable work in the ground training phases of the Naval Air Training Program. (NM 001 058.25.01, 3 Mar. 1953, CDR B. Clark (MSC) USNR and LCDR W. Johnson (MSC) USNR)

* * * * * *

From the Note Book

1. Information has been received indicating that certain dental officers have developed homologous serum hepatitis resulting from professional care rendered patients in Navy dental clinics. It is not an uncommon experience for the dental surgeon to suffer hand abrasions and puncture wounds which provide an ideal portal for entry of the virus. This item is cited in the hope that if other personnel have knowledge of analogous cases that such cases will be reported to the Bureau.

2. Two of the Bureau's scientific exhibits were displayed 22-25 Mar 1953, at the Thomas P. Hinman Mid-Winter Dental Clinic at Atlanta, Ga. The exhibits were: "The U. S. Navy Dental School's Method for Preparing Auricular Prosthesis," and "The U. S. Navy's Facsimile Arm for Venipuncture Training." The Bureau's scientific exhibit "The Role of the Dentist in Atomic Disaster" was displayed 11-14 May 1953, at the annual meeting of the Tennessee State Dental Association at Knoxville. This exhibit points out the desirability of further training for dentists, both civilian and military, in order that they may be of the greatest assistance possible in the event of an atomic disaster. Models developed by the Naval Dental School, National Naval Medical Center, Bethesda, Md., as visual aids to such training were shown. A projector displaying the type of casualties to be expected and a large photomontage illustrating Nagasaki and Hiroshima subsequent to the atomic bombing serve as dramatic and persuasive reminders. Other Bureau exhibits being displayed during the month of May were: "Tuberculosis Control in the U. S. Navy," at Camp Detrick, Frederick, Md., on Armed Forces Day, 16 May 1953; "The Navy Nurse," and "Trends in Food Sanitation," at Bolling Air Force Base, Washington, D. C., also on Armed Forces Day. (TIO, BuMed)

3. The Board of Honorary Civilian Consultants to the Navy Medical Department met with the Surgeon General of the Navy and other officers of the Navy Medical Department, in a 1-day conference on 14 May 1953, at the Bureau of Medicine and Surgery. The Honorary Consultants are appointed by the Surgeon General with the approval of the Secretary of the Navy. They serve for a 4-year period and meet with the Surgeon General each year to advise him on major administrative and professional problems of concern to the Navy Medical Department. (TIO, BuMed)

4. The forty-fifth anniversary of the establishment of the Nurse Corps of the Navy was observed on 13 May 1953. The corps was established by Act of Congress in 1908. A comparatively small Corps, it has less than 3,000 members on active duty. One thousand nurses are needed at the present time to bring it up to authorized strength. Nevertheless, its members carry out their vital work with patience, skill, and a devotion to duty in the best traditions of the nursing profession and of the Navy. (TIO, BuMed)

5. An analytical balance recently developed at the National Bureau of Standards automatically makes a continuous record of changes in weight, following even rapid changes with good accuracy. Developed by Floyd A. Mauer of the NBS mineral products laboratory, the new instrument is being used at the Bureau to record changes in weight of samples of complex minerals during thermal decomposition. Because it combines versatility and convenience with low cost, the device is suitable for many other laboratory applications requiring a record of weight as a function of time. (N. B. S.)

6. Members of the California Medical Association who continue to use a method of cancer treatment after being warned that it is valueless will be subjected to censure, suspension, or expulsion from their medical groups, it was announced 23 Mar. The CMA thus becomes the first State medical organization to take strong action against practitioners who treat cancer with drugs or other methods proved to be of no benefit to patients. (Cancer Control Letter, P. H. S., H. E. W.)

7. Many of the Navy's and the nation's outstanding experts on submarine medicine gathered for a 1-day conference on 13 May 1953, at the Experimental Diving Unit, Naval Gun Factory, Washington, D. C. During the conference the medical officers discussed problems associated with current apparatus now used by underwater demolition teams, diving equipment, and the physiologic and psychologic problems associated with the hazardous but necessary Navy work. Discussions were also held on other crucial problems concerning this work and the steps to be taken to alleviate these problems. Attending the meeting were representatives of the Bureau of Medicine and Surgery; Naval Medical Research Institute, Bethesda, Md.; the Navy Medical Research Laboratory, Submarine Base, New London, Conn.; Underwater Demolition Group No. 2; the Force Submarine Medical Officer, Atlantic Fleet; and the Experimental Diving Unit, Naval Gun Factory. (TIO, BuMed)

8. Dr. G. Milton Shy, formerly Chief of the Neurological Service, Colorado Medical School, has been appointed Chief of Clinical Research of the National Institute of Neurological Diseases and Blindness. Dr. Shy will be responsible for the planning and guidance of clinical research into the neurological and sensory disorders, among them multiple sclerosis, cerebral palsy, epilepsy, cataracts, and glaucoma. For these clinical studies, the Institute has been allocated 42 beds and 19 laboratories in the Clinical Center, the new research facility at Bethesda, Md. (P. H. S., H. E. W.)

9. Favism, an acute illness characterized in the severe form by hemolytic anemia and hemoglobinuria, is described in the Journal of Pediatrics, Apr. 1953, V. DeP. Larkin.

10. CAPT E.C. Swanson (MC) USN, CAPT R.K. Hoch (MC) USN, CDR E.A. Hynes (MC) USN, and CDR H.E. Wiggins (MC) USN have recently been elected to Fellowship in the American College of Surgeons. The following naval medical and dental officers have recently been certified in their specialties by American Boards: CAPT E.V. Jobe (MC) USN and LT J.M. Packard (MC) USN, American Board of Neurological Surgery; CDR W.H. Gulledge (MC) USN and CDR C.A. Stevenson (MC) USN, American Board of Orthopedic Surgery; CAPT T.R. Austin (MC) USN, LT C.E. Boonstra (MC) USN, and LT H.R. Delaney, Jr. (MC) USN, American Board of Pathology; LT A. Gedarovich (MC) USN, American Board of Pediatrics; CDR R.P. Black (MC) USN, American Board of Urology; LCDR J. Lingenfelter (MC) USN, American Board of Obstetrics and Gynecology: LT N.E. Adamson, Jr. (MC) USN, American Board of Surgery; LT R.K. Wallace (MC) USN and LT J.S. Featherston (MC) USN, American Board of Radiology; and CDR J.B. Stoll (DC) USN, CDR W.W. Dann (DC) USN, CDR M.L. Parker (DC) USN, and LCDR J.C. Chapman (DC) USN, American Board of Prosthodontics. (TIO, BuMed)

11. The intravenous use of corticotropin in optic neuritis is reviewed in Archives of Ophthalmology, Mar 1953, E.L. Smith.

12. A review of the concepts of origin, treatment, and a case of intrathoracic Hürthle cell (oxyphil cell) tumor of the thyroid is presented in the American Journal of Surgery, Apr 1953, W. Sinclair, Jr. and B.B. Larsen.

13. Two new officer correspondence courses are now available: The Maneuvering Board, NavPers 10933 and Navy Real Estate Law, NavPers 10989. (Naval Correspondence Center)

14. A discussion of management of eye casualties resulting from the Korean conflict appears in the American Journal of Ophthalmology, Apr 1953, Lt. Col. F.E. Hull, MC, USA.

15. The late effects of Thorotrast in tissues is discussed in Radiology 1953, LT A.P. Prezyna (MC) USN, CDR W.W. Ayres (MC) USN, and CDR W.C. Mulry (MC) USN.

16. The management of severe crushing injuries of the chest can be simplified by the use of tracheotomy, skeletal traction, and regional nerve block. (Proc. Staff Meet., Mayo Clin., 8 Apr 1953, P.E. Bernatz, J.W. Kirklin, and A.M. Olsen)

17. In a review of methods for aspiration and biopsy of bone marrow, the reasons for various procedures, their uses and advantages, are outlined so that the reader may select those best adapted to his own problems. (Am. J. Clin. Path., Apr 1953, L. Berman)

BUMED INSTRUCTION 4442.1 24 Apr 1953

From: Chief, Bureau of Medicine and Surgery
To: Ships and Stations Having Medical/Dental Personnel Regularly Assigned

Subj: Levels of supply for medical and dental stores at consumer activities

Ref: (a) Navy Property Redistribution and Disposal Regulation No. 1 (Revised Aug. 1, 1951)
(b) BuMed Inst. 6530.2
(c) BuMed Inst. 6710.4
(d) Art. 6-93, ManMedDept

1. This instruction establishes levels of supply for standard medical and dental stores for all consumer activities of the Navy, terminates the Emergency Expansion Reserve Program for continental activities, prescribes the method of determination and disposition of excesses, and provides guidance for the stocking and replacement of equipment. BuMed C/L 46-20 and 51-100 with enclosures (3) and (4) thereto are cancelled.

* * * * * *

BUMED INSTRUCTION 6800.1 27 Apr 1953

From: Chief, Bureau of Medicine and Surgery
To: All Ships and Stations

Subj: Orthopedic footwear and orthopedic alterations to standard footwear

Ref: (a) Department of Defense Directive 1338.5 of 30 June 1952

1. Reference (a) promulgated policies and regulations relative to the Armed Forces Clothing Monetary Allowance. This directive promulgates and implements that portion of reference (a) applicable to the Medical Department.

* * * * * *

BUMED INSTRUCTION 6700.2 27 Apr 1953

From: Chief, Bureau of Medicine and Surgery
To: All Ships and Stations

Subj: Property exchange and accountability in evacuation of patients

Encl: (1) Joint Army-Navy-Air Force directive concerning subject

1. This Instruction, through enclosure (1), incorporates into the Navy Directives System a joint Army-Navy-Air Force directive of 7 Aug 1950 which was originally published under the media designations of Army Regulation No. 40-538, Air Force Regulation No. 67-40, and BuMed C/L 50-92. BuMed C/L 50-92, for Navy purposes, is cancelled.

* * * * * *

BUMED INSTRUCTION 7000.1 1 May 1953

From: Chief, Bureau of Medicine and Surgery
To: All Ships and Stations Having Medical and/or Dental Personnel Regularly Assigned

Subj: Accounting and Reporting Procedures for Medical and Dental Material at Other Than Naval Hospitals

Encl: (1) Accounting and Reporting Procedures for Medical and Dental Material at Other Than Naval Hospitals

1. This instruction disseminates instructions to be used in accounting for medical and dental material. BuMed C/L 48-94 is cancelled.

* * * * * *

BUMED INSTRUCTION 7303.1B 6 May 1953

From: Chief, Bureau of Medicine and Surgery
To: All Stations

Subj: Allotment accounting and reporting under the appropriation, Medical Care, Navy

Ref: (a) NavComp Manual, Vol. 2, Chapters 2 and 3
(b) NavComp Manual, Vol. 3, Chapter 2
(c) MarCorps Memo 50-52
(d) BuMed Inst 7301.2

1. This instruction informs addressees of records and reports required on allotments under the appropriation, Medical Care, Navy. BuMed Inst. 7303.1A is cancelled.

BUMED INSTRUCTION 6250.2A 6 May 1953

From: Chief, Bureau of Medicine and Surgery
To: All Ships and Stations

Subj: Disinsection of Naval Vessels and Aircraft

Ref: (a) GO No. 20, Quarantine Regulations for Vessels and Aircraft of the Armed Forces

1. This instruction informs addressees of approved procedures and materials for the disinsection of naval vessels and aircraft. This Instruction incorporates ALNAV 10-53 and cancels BuMed Inst. 6250.2.

* * * * * *